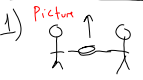
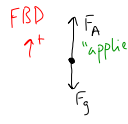

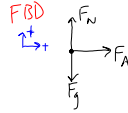
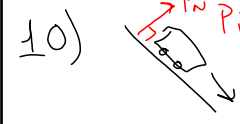
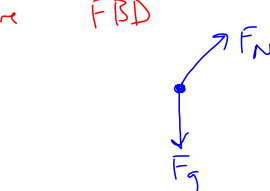


Forces Practice

1)  
 $\sum \vec{F} = m\vec{a}$
 $m = 175 \text{ kg}$
 $\vec{a} = +0.67 \text{ m/s}^2$
 $\sum \vec{F} = (175 \text{ kg})(0.67 \text{ m/s}^2) = +117.25 \text{ N}$

2)  
 Balanced forces in y-direction
 Unbalanced forces in the x-direction
 $\sum \vec{F} = m\vec{a}$
 $m = 1600 \text{ kg}$
 $\vec{a} = +20 \text{ m/s}^2$
 $\sum \vec{F} = (1600 \text{ kg})(+20 \text{ m/s}^2) = 32000 \text{ N}$

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10)  

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Equation for weight is the same one!

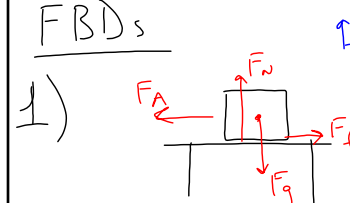
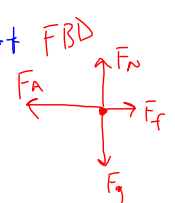
$F = m\vec{a}$
 \rightarrow this changes depending on where you are
 \rightarrow weight

12) $\vec{F}_E = m\vec{a}_E$
 $\vec{a}_E = 9.8 \text{ m/s}^2$
 $m = 88 \text{ kg}$
 $\vec{F}_E = (88 \text{ kg})(9.8 \text{ m/s}^2) = 862.4 \text{ N}$

14) $\vec{F}_M = m\vec{a}_M$
 $\vec{a}_M = \left(\frac{1}{6}\right)\vec{a}_E$
 $\vec{F}_M = (85 \text{ kg})\left(\frac{1}{6}\right)(9.8 \text{ m/s}^2) = 138.83 \text{ N}$

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FBDs

1)  

F_{net}
 F_{total}
 Balanced forces in y-direction
 Unbalanced forces in x-direction

$\sum \vec{F} = -F_A + F_f$
 $= -13 \text{ N} + 7 \text{ N}$
 $= -6 \text{ N}$

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